

Notice of Allowability

Application No.

10/668,619

Examiner

Leo Boutsikaris

Applicant(s)

POPOVICH ET AL

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed on 12/27/04.
2. ☒ The allowed claim(s) is/are 69-91.
3. ☒ The drawings filed on 23 September 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

Terminal Disclaimer

The terminal disclaimer filed on 12/27/04 disclaiming the terminal portion of any patent granted on this application, which would extend beyond the expiration date of U.S. Patent 6,678,078 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Allowable Subject Matter

Claims 69-91 are allowed.

Claims 69-89, 91 are allowable over the prior art for at least the reason that even though the prior art discloses an optical apparatus comprising a series of switchable holographic elements, each holographic element reflecting or passing through the incident light depending on the state of the element, the prior art fails to teach or reasonably suggest an apparatus comprising a first group of first, second, and third holographic optical elements electrically switchable between active and inactive states, a second group of first, second, and third holographic optical elements electrically switchable between active and inactive states, wherein each of the first, second and third holographic optical elements diffracts first bandwidth, second bandwidth or third bandwidth light, respectively, incident on the front surface thereof when operating in the active state, and wherein a display device is configured to be illuminated directly or indirectly with light emerging from one of the first, second, or third holographic optical elements while the

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display device is displaying the monochrome image frame, as set forth by the claimed combination.

Claim 90 is allowable over the prior art for at least the reason that even though the prior art discloses an imaging system utilizing a series of switchable holographic elements to diffract light onto an image sensor when their status is OFF, the prior art fails to teach or reasonably suggest an apparatus comprising a solid state optical element comprising at least one hologram switchable between active and inactive states, wherein the at least one hologram is configured to diffract a first bandwidth light when operating in the active mode; and configured to transmit the first bandwidth light without substantial alteration when operating in the inactive mode, as set forth by the claimed combination.

Stone (US 6,072,923) discloses an optical apparatus that is used for optical switching, routing and time delaying optical information signals, and there is no suggestion, nor motivation to use the above system in conjunction with optical display images. Silverstein (US 6,166,800) discloses a solid state imaging system (Figs. 4-5), wherein a lens 42 is used to focus light on a series of switchable holographic elements 46, 48, 50, which diffract light onto an image sensor 45. The above system differs from the claimed system in the following ways: Silverstein's system uses a lens to focus light on the switchable elements as opposed to the claimed system wherein a condenser lens is used to collimate light incident on the switchable elements; each of the switchable elements in the former system diffracts light when it is in the OFF state (lines 30-40, col. 6), as opposed to the claimed system wherein each element diffracts light when in the ON state; finally, the former system utilizes an image sensor such as a CCD device, as opposed to the claimed system wherein the holographic elements illuminate an image display device.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Leo Boutsikaris whose telephone number is 571-272-2308.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Leo Boutsikaris, Ph.D.
Primary Patent Examiner, AU 2872
January 9, 2005

A handwritten signature in black ink, consisting of stylized initials 'LB'.